

ABSTRACT

The present invention has an objective to provide a high performance piezoelectric element in which is formed an aluminum nitride thin film free from hillocks, cracks, and peeling which exhibits superhigh c-axis orientation, by forming a bottom electrode from a W layer with no intervening adhesive layer on a glass or other cheap substrate. The piezoelectric element of the present invention is a piezoelectric element using a superhigh-oriented aluminum nitride thin film characterized in that the piezoelectric element is free from hillocks, cracks, and peeling and includes a stack structure in which a bottom electrode, a piezoelectric body thin film, and a top electrode are sequentially formed on a substrate; the bottom electrode is made of an oriented W layer of which a (111) plane of W is parallel to a surface of the substrate; and the piezoelectric body thin film is formed of a c-axis-oriented aluminum nitride thin film having a rocking curve full width half maximum (RCFWHM) not exceeding 2.5° .